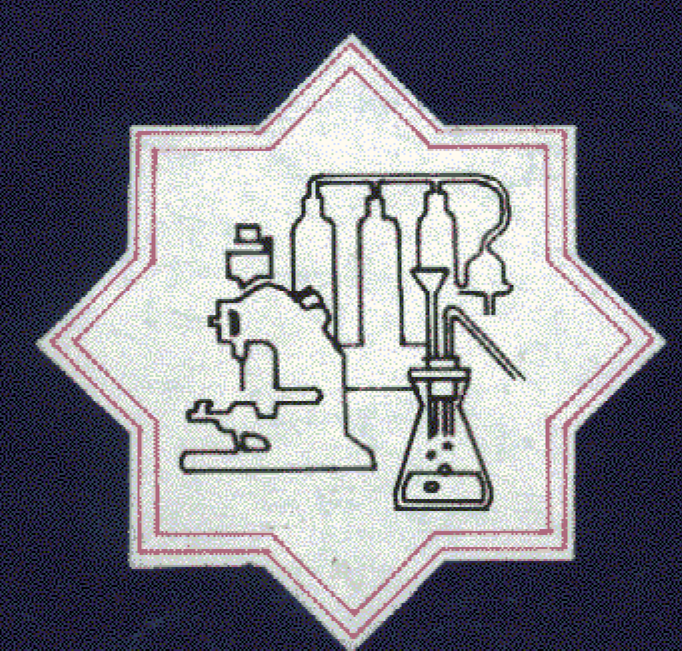
A. R. E.
Ministry of Waqfs
The Supreme Council for Islamic Affairs

ISLAM AND SCIENCE
— 1 —

by
Prof. Dr. M. G. El-Fandy
Head of the Committee of Experts.



CAIRO 1414 — 1993

Under the Supervision of :
Dr. Muhammad Ali Mahgoub

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ISLAM AND SCIENCE

INTRODUCTION.

Amongst us, human beings, none is completely devoid of the innate feeling — even from time to time — that there is a Creating God behind this universe. Such a feeling may be frustrated and people may be prevented from responding to it by the teachings they get as a result of their belonging to a particular environment, their indulgence in earthly life and cheap pleasure naturally, the Amlighty Creator should differ from us in all respects :

"And unto Him the like is not";

— Al-Shoura — (11).

لَيْسَ كَمِثْلِهِۦ شَىْءٌ الشورى (١١)

Most people could not be easily induced by this sincere feeling of the existence of the Creator to follow the right path leading to Him. Thus, Allah [God's name in Islam] sent Prophets and Apostles — Allah's peace and blessings be upon them — with divine support in the form of miracles suitable to their environment, until the advent of the last of His apostles, Prophet Muhammad, who emerged after the maturity of the human mind when the age of science was immanent; Allah supported him with the Qurân to be an Eternal Miracle.

Evidently, nothing can remain forever on earth as an eternal miracle except a unique book. The inimitable elocution and teachings of such a book must be conspicuous and convincing at all stages of civilization. The Qurân is the only book which fulfils such conditions.

The very beginning of the revelation was an outstanding signal for the acquisition of knowledge and a forerunner of giving it its due dignity : "Read in the name of thy Master Who created;created man from a clot; read and thy Master is most generous; Who taught by the pen; taught man what he knew not".

—Al-Alaq—(1-5).

اقْرَأْ بِاسْمِ رَبِّكَ الَّذِى خَلَقَ ① خَلَقَ الْإِنسَٰنَ مِنْ عَلَقٍ ② اقْرَأْ وَرَبُّكَ الْأَكْرَمُ ③ الَّذِى عَلَّمَ
بِالْقَلَمِ ④ عَلَّمَ الْإِنسَٰنَ مَا لَمْ يَعْلَمْ ⑤ العلق (١ - ٥)

At the different stages of the revelation the Qurân pointed out that knowledge meant all branches of science.

To become Muslim one should first of all believe in the Almighty Allah and in the teachings of the Holy Qurân. "Verily in the creation of the Heavens and the Earth and in the variation of night and day are signs for people of understanding minds";

– Aal-Imran—(190).

إِنَّ فِى خَلْقِ السَّمَٰوَٰتِ وَالْأَرْضِ وَاخْتِلَٰفِ الَّيْلِ وَالنَّهَارِ لَءَايَٰتٍ لِّأُولِى الْأَلْبَٰبِ

آل عمران (١٩٠)

"But it is clear signs in the hearts of those whom ["the knowledge] has reached";

—Al-Ankaboot—(49).

بَلْ هُوَ ءَايَٰتٌۢ بَيِّنَٰتٌ فِى صُدُورِ ٱلَّذِينَ أُوتُوا۟ ٱلْعِلْمَ العنكبوت (٤٩)

In fact, a great number of the Qurânic verses are cosmic verses which reveal the signs of the Almighty Creator in the universe. This is only natural, since He Who created the universe is He Who supported Prophet Muhammad by the Holy Qurân [Allah's own words] to be the Eternal Miracle. For example we read :

"Assuredly, in the Heavens and the Earth are signs for the believers; and in the creation of yourselves and the living beings He disperses on Earth are signs to the firm in faith; and in the variation of night and day and the sustenance which Allah sends down from the Heaven, whereby He gives life to the Earth after its death, and in sending winds in their ways are signs for a people of discernment"

—Al-Jathiya—(2-5).

إِنَّ فِى ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ لَءَايَٰتٍ لِّلْمُؤْمِنِينَ ۝ وَفِى خَلْقِكُمْ وَمَا يَبُثُّ مِن دَآبَّةٍ ءَايَٰتٌ لِّقَوْمٍ يُوقِنُونَ ۝

وَٱخْتِلَٰفِ ٱلَّيْلِ وَٱلنَّهَارِ وَمَآ أَنزَلَ ٱللَّهُ مِنَ ٱلسَّمَآءِ مِن رِّزْقٍ فَأَحْيَا بِهِ ٱلْأَرْضَ بَعْدَ مَوْتِهَا وَتَصْرِيفِ ٱلرِّيَٰحِ

ءَايَٰتٌ لِّقَوْمٍ يَعْقِلُونَ الجاثية (٢ – ٥)

Many verses need comment, or detailed explanation on correct scientific basis, by means of specialists before one can realize how far they prove to be miraculous in the age of science. The following are examples of my comments on scientific basis on verses of this type.

1 — SOME COMMENTS BASED ON ASTRONOMY

1. *"With power and skill did We construct the Heavens and indeed We expand them".*

—Al-Zariyat—(47).

وَٱلسَّمَآءَ بَنَيْنَـٰهَا بِأَيْيْدٍ وَإِنَّا لَمُوسِعُونَ الذاريات (٤٧)

Comments on this verse passed by three scientifically correct phases, each of which suited its own age of civilization.

A — The verse was at first explained by saying that inspite of the almost unlimited amounts of matter and radiation comprized in the universe and form it, Almighty Allah has more and more of them. Certainly this is true and fair.

B — The verse also declares a fact that has been established gradually by actual observation. Thus, the progress in manufacturing telescopes within the last two centuries, and the recent use of radio telescopes, extended our scope of vision from the solar system [5 light hours in diameter], to the Milky Way [100,000 light years in diameter], to the other galaxies such as Andromeda [750,000 light years far], to quasars and pulsars [billions of light* years far]. Such galaxies are so remote from us that they appear as mere light spots in Heavens. This is inspite the fact that each galaxy is formed of millions and millions of stars. Miraculously enough Almighty Allah says in the Holy Qurân :

2. "Indeed I could swear by the sites of the stars and it is a

great oath if you are aware of them."

— **Al-Waqia — (75).**

الواقعة (٧٥) فَلَا أُقْسِمُ بِمَوَاقِعِ النُّجُومِ ﴿٧٥﴾ وَإِنَّهُ لَقَسَمٌ لَوْ تَعْلَمُونَ عَظِيمٌ

C — Finally, a third meaning of the verse: "With power and skill did We construct the Heavens and indeed we expand them", is obviously that the universe expands. However the expansion of the universe has been established by observation. Galaxies are receding away from us (the Milky Way) at speeds which are proportional to their distances from us.

Also, the expansion of the universe has been shown to be an outstanding result of the Theory of Relativity.

Amongst the outstanding services which the Earth's atmosphere renders to life in general is that it contains the oxygen on which this life depends. The amounts of this oxygen, together with the total atmosphere pressure decrease rapidly with elevation. If we assume that the total oxgyen at the Earth's surface is 20 units, then at the height of 10 kilometers from the surface it becomes equal to 2 units only, and at a height of 30 kilometers it will be 0.2 units only.

Any one who happens to ascend vertically up in the atmosphere will soon feel that he needs more and more air to inhale. This means that he will feel the need to a wider breast to inhale the proper amount of oxygen. This fact was first stated by the Holy Qurân which says :

3. "That whom He willeth to leave straying He makes his breast close and constricted as if he has to rise up in the sky".

— Al-Anâm — (125).

وَمَن يُرِدْ أَن يُضِلَّهُ يَجْعَلْ صَدْرَهُ ضَيِّقًا حَرَجًا كَأَنَّمَا يَصَّعَّدُ فِي السَّمَاءِ الانعام (١٢٥)

Again, there is a verse in the Holy Qurân which transfers 300 solar years to 309 whole lunar year, neglecting year fractions. However, such transformation from one system or calendar to another demanded sound knowledge of astronomy, notably at that time. The verse is :

4. "They remained in their cave three hundred years, a number which has to be increased by nine years".

— Al-Kahf — (25).

وَلَبِثُوا فِي كَهْفِهِمْ ثَلَاثَ مِائَةٍ سِنِينَ وَازْدَادُوا تِسْعًا الكهف (٢٥)

It is worth mentioning in passing, however, that the Qurânic verses related to astronomy are numerous, and we have to give brief comments on a limited number of verses chosen to represent various branches of astronomy. One of the verses mentioning the water of the Earth which characterizes it and makes it different from other planets in the solar system says :

5. "And We sent down water from Heavens, according to a precise measure and thereby caused the Earth to hold it";

— Al-Mu'minun — (18).

وَأَنزَلْنَا مِنَ السَّمَاءِ مَاءً بِقَدَرٍ فَأَسْكَنَّاهُ فِي الْأَرْضِ المؤمنون (١٨)

In the earlier stages of the development of the Earth as a planet it could collect water from Heavens according to a precise measure, so that it could fulfil its mission and sustain living beings on it. This means that, in other words, the quantity of water accumulated on Earth is not haphazardly sent down, inspite the fact that most of the Earth's surface is covered by oceans and seas [about 4/5].

There is a constant gaseous exchange between the hydrosphere and the atmosphere. The most important gas exchanged in this operation is water-vapour which on condensation in the air-layers of cloud formation gives rise to precipitation, the origin of fresh water on Earth.

Amazingly enough, the Polar Circle, which most proobably was unknown to the Arabs, and within which the sun rises continuously for about six months in summer, is mentioned in the Holy Qurân in a verse concerning Zul-Quarnain. The verse says :

6. "Until when he reached the land of sun rise he found it rising on a people for whom We had provided no covering shelter against the sun".

Al-Kahf (90)

حَتَّىٰٓ إِذَا بَلَغَ مَطْلِعَ ٱلشَّمْسِ وَجَدَهَا تَطْلُعُ عَلَىٰ قَوْمٍ لَّمْ نَجْعَل لَّهُم مِّن دُونِهَا سِتْرًا ٩٠ الكهف (٩٠)

About the almost spherical shape of the Earth's surface, we know pretty well that on the hemisphere facing the sun it is day, while on the other it is night. This means that when Allah's command comes and the Hour (of resurrection) is decreed, it is day on one half of the Earth's surface and night on the other. The Holy Qurân says :

7. **"Our command comes to Earth by day and by night"**

—Yunus—(24).

أَتَيْهَا أَمْرُنَا لَيْلًا أَوْ نَهَارًا   يونس (٢٤)

Another clear interpretation concerning this verse is that the Hour comes all of a sudden by day or at night.

Finally, speaking about space-travel and the existence of life in other planets, we should not forget that the Theory of probability strongly favours and supports the existence of life in planets having physical features and environments similar to our Earth.

It has also been estimated that at least two million planets similar to our Earth exist in the Milky Way, and since the Universe is a Universe of galaxies, or made of billions of galaxies, it can be easily deduced that living creatures in the Universe are numberless. Regarding this matter the Holy Qurân says :

a. **"Seek they then other than Allah's religion? and to Him submitted whoever in the heavens and the earth";**

—Al-Imran—(8).

أَفَغَيْرَ دِينِ ٱللَّهِ يَبْغُونَ وَلَهُۥٓ أَسْلَمَ مَن فِى ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ   آل عمران (٨٣)

b. **"Whoever in the heavens and the earth ask Him ...";**

—Al Rahman—(29).

يَسْـَٔلُهُۥ مَن فِى ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ   الرحمن (٢٩)

c. "And of His signs is the creation of the heavens and the earth and what He has spread forth in both of them of living beings; and He is All-powerful to gather them together when He will,";

—Al-Shura—(29).

وَمِنْ ءَايَٰتِهِۦ خَلْقُ ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ وَمَا بَثَّ فِيهِمَا مِن دَآبَّةٍ ۚ وَهُوَ عَلَىٰ جَمْعِهِمْ إِذَا يَشَآءُ قَدِيرٌ

الشورى (٢٩)

d. "And to Allah makes obeisance every living creature that is in the heavens and that is in the earth and the angels (too) and they are not proud";

—Al-Nahl—(49).

وَلِلَّهِ يَسْجُدُ مَا فِى ٱلسَّمَٰوَٰتِ وَمَا فِى ٱلْأَرْضِ مِن دَآبَّةٍ وَٱلْمَلَٰٓئِكَةُ وَهُمْ لَا يَسْتَكْبِرُونَ

النحل (٤٩)

2 — SOME COMMENTS BASED ON METEOROLOGY

Meteorology is concerned with the study of [air in its ways]. Allah says :

1 . "and in the turning about of the winds and the clouds compelled between the sky and the earth surely there are signs for a people who understand"

— Al-Bakara (Verse 164) —

وَتَصْرِيفِ الرِّيَاحِ وَالسَّحَابِ الْمُسَخَّرِ بَيْنَ السَّمَاءِ وَالْأَرْضِ لَآيَاتٍ لِّقَوْمٍ يَعْقِلُونَ **البقرة** (١٦٤)

2 . "and in the turning about of the winds there are signs for a people who understand".

— Al-Gathiya — (5).

وَتَصْرِيفِ الرِّيَاحِ آيَاتٌ لِّقَوْمٍ يَعْقِلُونَ **الجاثية** (٥)

However, the Qurân is known to be the first book which declared and announced the fact that clouds are formed by winds.

"And Allah is He Who sends forth the winds so that they raise up the clouds, and He drives them to a land that is dead·

— Fatir — (9).—

وَاللَّهُ الَّذِي أَرْسَلَ الرِّيَاحَ فَتُثِيرُ سَحَابًا فَسُقْنَاهُ إِلَىٰ بَلَدٍ مَّيِّتٍ **فاطر** (٩)

It is well known now that air contains water-vapour, and that when it rises up in the atmosphere (by various ways), its temperature decreases adiabatically, and consequently it can no longer hold all its water-vapour content. Condensation of the surplus water-vapour thus takes place, either in the form of droplets or in the form of ice crystals, according to the prevailing temperature. In this manner clouds develop in rising air.

Evidently the ascending air mass either ultimately spreads in a single layer or strata-giving rise to a family of clouds called **stratus** clouds, or it may continue to ascend giving rise to the family of cumulus clouds which **grow vertically up.**

Miraculously enough, the Qurân differentiates between the two types in the same manner as they are now scientifically identified.

The Qurân says :

1 —"Allah is He Who sends forth the winds as they raise clouds then does He **spread** them in the sky as He wishes".

— Al Roum — (48).

الروم (٤٨) اللَّهُ الَّذِي يُرْسِلُ الرِّيَاحَ فَتُثِيرُ سَحَابًا فَيَبْسُطُهُ فِي السَّمَاءِ كَيْفَ يَشَاءُ

This is the stratus type formed by the spreading of the clouds in strata.

2. "Seest thou not that Allah drives along some clouds then He joins them together then Makes them into heaps of **cumulus ...**"

— Al-Nour — (43).

النور (٤٣) أَلَمْ تَرَ أَنَّ اللَّهَ يُزْجِي سَحَابًا ثُمَّ يُؤَلِّفُ بَيْنَهُ ثُمَّ يَجْعَلُهُ رُكَامًا

This is the cumulus type which develops vertically upwards to heights reaching 20 kms.

Now, when clouds give rain they are called nimbus, and we have the two types namely : Nimbo-stratus and cumulo-nimbus. This stage is the result of the continuation of the

ascending air to provide the growing clouds by water-vapour and tiny or microscopic bodies known as "nuclii of condensation".

We refer to this process by saying that winds seed clouds to give precipitation.

Apart from their vertical structure and mode of growth, the outstanding physical difference between the nimbo-stratus clouds and the cumulo-nimbus (Cb) clouds is that while the Cb clouds may be accompanied by the formation of hail, lightning, thunder, or thunder-baults, nimbo-stratus clouds may only be associated with rain or snow-fall in cold regions.

There is, however, a big difference between hail and snow. A hail stone may grow in size to become as big as an orange.

The rôle played by hail in charging the Cb cloud with electricity can be summarised as follows [P.A. Sheppard, Science Progress No. 149, 150]:

1 — Positive charge is acquired by an ice crystal growing from the vapour. The corresponding negative charge being carried away on ice splinters breaking from the parent crystal (top of the cloud).

2) Negative charge is acquired by an evaporating ice crystal or hail stone (near the edge of the cloud).

3) Positive charge much greater than in (1) and (2) is acquired by a hailstone which rimes under bombardment from super-cooled water-droplets or water drops (Middle of the cloud). having temperatures below O°C.

In the light of the physical knowledge, we are going to read the last two verses in complete wording :

The verse concerning the nimbo-stratus type of clouds says :

«Allah is He Who sends forth the winds so they raise clouds then does He spread them in the sky as He pleases and He makes them partially thick so that you see the rain coming from inside them then when He causes it (i.e. the rain) to fall upon whom He pleases of His worshipers they rejoice".

[Al-Roum — (48)].

الله الذى يرسل الريح فتثير سحابا فيبسطه فى السماء كيف يشاء ويجعله كسفا فترى الودق يخرج من
خلاله فإذا أصاب به من يشاء من عباده إذا هم يستبشرون ⁽⁴⁸⁾ الروم (٤٨)

The verse of the Cb clouds says :

"Seest thou not that Allah drives along some clouds then joins them together then makes them into heaps of cumulus then wilt thou see rain issuing from their inside and He sends down from the sky mountain masses of cumulus wherein is hail afflicting therewith whom He pleases and turning it away from whom He pleases, the vivid flash of its lightning (whose electric charge is due to hail) almost takes away the sight."

— Al-Nour — (43).

ألم تر أن الله يزجى سحابا ثم يؤلف بينه ثم يجعله ركاما فترى الودق يخرج من خلاله وينزل من السماء من
جبال فيها من برد فيصيب به من يشاء ويصرفه عن من يشاء يكاد سنا برقه يذهب بالأبصار

النور (٤٣)

An observer located near the source of the lightning, say being on the top of a high mountain or flying in an aircraft, will have his eyes affected by the lightning, and will lose his sight for a while. Evidently such conditions of observation

were not available to the Prophet, who delivered the message of God.

About 25 years ago in my Book "Cosmic Verses in the Qurân" which appeared in 1961, I quoted several similar verses.

Finally, we have mentioned that for rain to fall from clouds, the winds forming the clouds must continue to seed them with water-vapour and the so-called nuclii of condensation which are mainly sea-salts.

In this respect the Qurân says : "And We send the winds seeding the clouds, thus cause water to descend from the sky therewith providing you with it to drink and you are not the owners of its stores".

—Al-Hijr—(22).

وَأَرْسَلْنَا ٱلرِّيَٰحَ لَوَٰقِحَ فَأَنزَلْنَا مِنَ ٱلسَّمَآءِ مَآءً فَأَسْقَيْنَٰكُمُوهُ وَمَآ أَنتُمْ لَهُۥ بِخَٰزِنِينَ الحجر (٢٢)

We know now that rain is not stored in the sky but a water-cycle.

3 — ON THE ORIGIN OF THE UNIVERSE

Man always tried to solve the mystery of the origin of life. As far back as the history of human thought can be traced there is evidence of this problem.

Even the greater problem of the origin of the universe can be traced back, and according to the cosmogonies developed by primitive societies, the birth of the universe was a problem of generation on a gigantic scale, resulting from a monstrous principal egg ! Strangely enough, this is also the modern accepted theory !

However, there is a verse in the Qurân which says :

أولم ير الذين كفروا أن السموت والأرض كانتا رتقا ففتقنهما وجعلنا من الماء كل شيء حي

الأنبياء (٣٠)

[Do not the infidels see that the heavens and the Earth were joined together as one unit before we split them apart and that we made of water every living thing?]

— **Al-Anbiya (30)** —

The main difficulty in such studies arises from the fact that the connection between theory and observation is so slight that it is always liable to break down. Bold statements and imaginary theories are always ready to fill in the gaps of our present ignorance.

Another main difficulty arises from the fact that science ignores entirely the relations between the Creator and the creation, and has nothing to do with things beyond the scopped matter and radiation, such as spirits or the hereafter.

As regards the first difficulty the Qurân says :

• مَا أَشْهَدتُّهُمْ خَلْقَ السَّمَٰوَٰتِ وَالْأَرْضِ وَلَا خَلْقَ أَنفُسِهِمْ وَمَا كُنتُ مُتَّخِذَ الْمُضِلِّينَ عَضُدًا

الكهف (٥١)

[I made them not to witness the creation of the heavens and the Earth nor their own creation, nor choose I wicked leaders who do not carry out my orders]. (Al-Kahf - 51)

About the second difficulty the Quran says :

يَعْلَمُونَ ظَاهِرًا مِّنَ الْحَيَوٰةِ الدُّنْيَا وَهُمْ عَنِ الْآخِرَةِ هُمْ غَٰفِلُونَ الروم (٧)

[Say : Their knowledge is restricted only to things which are apparent to them — either directly or indirectly — during their lives on Earth, but surely they care not to think of the hereafter].

(Al-Roum - 7)

About the same drawback in human senses and knowledge, the Quran also says :

إِنَّا عَرَضْنَا الْأَمَانَةَ عَلَى السَّمَٰوَٰتِ وَالْأَرْضِ وَالْجِبَالِ فَأَبَيْنَ أَن يَحْمِلْنَهَا وَأَشْفَقْنَ مِنْهَا وَحَمَلَهَا الْإِنسَٰنُ إِنَّهُ

كَانَ ظَلُومًا جَهُولًا ﴿٧٢﴾ الاحزاب (٧٢)

Verily, We proposed to the Heavens and to the Earth and to the mountains to bear the responsibility of knowledge, but they refused the burden, and they feared to receiwed it. Man undertook to bear it, but has proved to be unjust and senseless !

— Al-Ahzab (72) —

However, we Muslims know that Allah is the Creator. He is not subjected to our physical laws, as well as He is above

the detection of our senses, but yet He made Himself quite clear to us in two Distinct Eternal Books :

1 — The Universe in which we exist. This is the Visual Book.
2 — The Qurân (the words of Allah). This book can be read (readable). It was then natural that when Allah spoke to us by the Qurân, a great number of Qurânic verses drew our attention to Allah's signs in the universe in an amazing scientific manner.

In the light of this brief introduction we no longer forget that our knowledge can be received from two sources :

The first source is the Glorious Qurân, and the second source is the established scientific studies or facts. In Islam there is no contradiction in any information gained from the two sources.

The proper scientific way leading to a proper understanding of the origin of things on Earth is to collect fossils.

قُلْ سِيرُوا فِي الْأَرْضِ فَانظُرُوا كَيْفَ بَدَأَ الْخَلْقَ — العنكبوت (٢٠)

[Say : go and travel through the Earth and see how Allah did originate creation .]

— Al-Ankabout (20) —

We can explain this verse scientifically by saying : [go and travel through the Earth] in order to study its crust, and to collect fossils from here and there, and remains of organisms that lived throughout the ages.

By adopting this scheme, I can say that as far as the present types of the living organisms or species can be traced back throughout the ages, it has been found that no vital

change occured in them. In other words man remained as man and was created as man.

There is no evolution from one species to another, but mere development due to acclimatization, such as change in colour, or adaptation due to environment. Study of these things leads to an understanding of the origin of life.

In other words, evidence of things throughout the ages is recorded on the rocks of these ages in the form of fossils, or barried things that can be carefully studied and traced back.

4 — CONCLUSION AND REMARKS

By science is meant all branches of knowledge. It includes studies concerned with the universe and allied subjects under which fall the modern sciences such as biology, chemistry, physics, astronomy, meteorology and geology. The Holy Qurân, which is the Book of Muslims, raises high the prestige and value of these sciences and encourages people to study them for the general good.

The most sublime reference in this respect and most outstanding reality in this connection is that the very first verses of the Holy Qurân as revealed by Allah (God) gave incentive to gain knowledge and to glorify it. The very beginning of the Revelation was actually a signal for the dawn of the age of science and a forerunner of giving knowledge its due dignity. Thus the first verse of the Book says in Surat Al Alaq :

"Read in the name of Allah (God) the Creator, who created man from a clot. Read and your Master is most generous, who taught by the pen, taught man what he knew not".

The Quran explains in succession at different stages of the Revelation, the meaning of science and education, and points out to the importance of studying the universe, its matter, energy, and living creatures. These are the sciences by which man gains faith and fear of Allah, in addition to gaining power. For example, we refer to the following verses :

1. "Those of His servants only who are possessed of knowledge fear Allah. Surely Allah is mighty, foregiving".
2. "Indeed in the heavens and the earth there are signs for the believers".
3. "And of His signs is the creation of the heavens and the

earth and the diversity of your tongues and colours. Surely there are signs in this for the learned".

4. "Have you any knowledge, if so you would bring it forth to us? You only follow a conjecture".
5. "Say : Are those who know and those who know not, alike"?

Other verses not only speak highly of science and scientists, but also draw our attention and direct us to pursue knowledge and discover the secrets of the universe. It is a fact that the scientific renaissance, was due to gathering correct observations and performing sound experiments. Physical laws are nothing but interpretations of phenomena in the material world. Although, we do not claim absolute authenticity of such laws, yet we agree that they represent the largest possible amount of authenticity and precision. In the light of growing accuracy in observation, scientists introduce, from time to time, amendments or generalisations in some of the physical laws so as to bring them closer to what we may call (fact), or to make them more useful.

This means that continuous observations are to be made concerning earth and heavenly bodies, and this is exactly what the Qurân ordains, as there are verses that mean :

1. "Say : Go through in the earth and thus see how creation began", declaring that the history of our earth is written on the rocks of its crust.
2. "See they not the clouds how they are created? and the sky how it is raised high?"
3. "Do they not consider the kingdom of the heavens and the earth and what things Allah has created?"
4. "Say : Bring forth your proof, provided you are right".

Such verses, as well as many others, show that in Islam it is not wise for the people to have mere fantasy as the basis of their religious ideologies or scientific theories. Any conclusion which has no support of experience or clear evidence will not do. In so doing they will be like those who deduce the properties of matter or explain natural phenomena without making observations or carrying experiments, or those who inherit beliefs without subjecting them to text in order to find out right from wrong.

The Holy Qurân, describing such people, says : "And when it is said to them come to that which Allah has revealed and to the Messenger, they say : Sufficient for us is that wherein we found our fathers. What ! Even though their fathers knew nothing and had no guidance"?

Another important point concerning the fact that science is the message of Islam becomes evident and clear when we see how the Book describes with scientific precision and accuracy matters pertaining to the universe. This shows unmistakably the authenticity and truth of the Revelation. It also urged Muslims and encouraged them to take interest in science during the so-called middle-ages or dark ages. In this way, many famous Muslim Scientists arose. In astronomy, for example, the activities and discoveries of the following Muslim Astronomers and Mathematicians can not be forgotten :

Thabet Ben Qorra
El-Bairouny
El-Battany
Ebn Younis
Al-Khalily
Gamshid
Al-Khouarazmy

Examples of the accuracy and precision of the scientific expressions and principles met with in the Book, can be given to various branches of science. In meteorology, for example, the Book states the scientific facts regarding the formation of clouds by rising air of winds, and the fall of rain by seeding or continual addition to the clouds of water-vapour carried up by the rising air. The Qurân says :

1. "Allah is He Who sends forth the winds so they rise a cloud".

2. "And He sends the winds seeding the clouds to yield water and We give it to you to drink.

3. "Seest they not that Allah drives along bits of clouds, then combines them together, then piles them up to form cumulus from the inside of which they see rain coming down? The cumulus clouds appear in the sky like mountains wherein is hail, afflicting therewith whom He pleases and turning it away from whom He pleases. The flash of its lightning almost takes away the sight".

This verse draws our attention to the three outstanding atmospheric phenomena recently observed and well described by using various equipments such as radar.

i) The cumulus cloud starts with the appearance in the sky of two or more cells which unite together to form the growing cumulus.

ii) Hail forms only in towering cumulus and not in stratus clouds for example.

iii) Hail is also now known to be responsible for charging cumulus clouds with electricity and thus the development of

thunder-storms. The outstanding danger that threatens pilots in these storms is that lightning flashes almost take away their sight for a while.